AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) An optical pickup apparatus comprising:

a first light source for emitting a first light flux with a first wavelength λ1 of 450 nm or less;

a second light source for emitting a second light flux with a second wavelength λ2 which is in the range of 600 nm-700 nm ~~1.3 times longer than the wavelength of the first wavelength λ1~~;

a third light source for emitting a third wavelength λ3 which is in the range of 730 nm-830 nm;

an objective lens unit to converge the first light flux emitted by the first light source onto a first information recording surface of a first optical disk, [[and]] to converge the second light flux emitted by the second light source onto a second information recording surface of a second optical disk with a different recording density from that of the first optical disk, and to converge the third light flux emitted by the third light source onto a third information recording surface of a third optical disk with a different recording density from those of the first and the second optical disks;

a spherical aberration correcting optical unit which is arranged between both of the first light source and the second light source and the objective lens unit and is arranged in a common optical path of the first light flux and the second light flux; and

a chromatic aberration correcting optical element which is arranged in the common optical path of the first light flux, ~~and~~ the second light flux and the third light flux and includes a diffractive surface on at least one optical surface of the chromatic aberration correcting optical

element such that a diffractive structure which is constructed by a plurality of ring-shaped zones separated by fine steps is formed on the diffractive surface,

wherein the depth of steps along an optical axis is designed so that n2, which is a diffraction order of a diffracted ray having a largest diffraction efficiency among diffracted rays caused when the second light flux enters into the diffractive structure, is a lower order than n1, which is a diffraction order of a diffracted ray having a largest diffraction efficiency among diffracted light rays caused when the first light flux enters into the diffractive structure, and

wherein the chromatic aberration correcting optical element satisfies one of the following combinations:

(n1, n2, n3) = (2, 1, 1), (4, 2, 2), (6, 4, 3), (8, 5, 4), (10, 6, 5)

where n1, n2, and n3 are diffraction orders of diffracted rays with the largest diffraction efficiencies in the diffracted rays when the first, second and third light fluxes enter into the chromatic aberration correcting optical element, respectively.

2. (Original) The optical pickup apparatus of claim 1, wherein the spherical aberration correcting optical unit changes a slope angle of a marginal ray in an incident light flux to the objective lens unit by variably adjusting an interval between at least one lens group among lens groups composing the spherical aberration correcting optical unit and the objective lens unit.

3. (Previously amended) The optical pickup apparatus of claim 1, wherein the chromatic aberration correcting optical element is arranged between both of the first light source and the second light source and the objective lens unit.

4. (Original) The optical pickup apparatus of claim 3, wherein the spherical aberration correcting optical unit comprises the chromatic aberration correcting optical element.

5. (Original) The optical pickup apparatus of claim 1, wherein the objective lens unit comprises the chromatic aberration correcting optical element.

6. (Original) The optical pickup apparatus of claim 1, wherein the optical pickup apparatus further comprises at least a coupling lens for converting a divergence angle of a light flux emitted by the first light source and introducing the converted light flux into the objective lens unit, and the spherical aberration correcting optical unit comprises the coupling lens and an expander lens including a positive lens group and a negative lens group and arranged in an optical path between the coupling lens and the objective lens unit.

7. (Original) The optical pickup apparatus of claim 1, wherein the spherical aberration correcting optical unit is a coupling lens for converting a divergence angle of a light flux emitted by the first light source and the second light source and introducing the converted light flux into the objective lens unit.

8. (Original) The optical pickup apparatus of claim 1, wherein the spherical aberration correcting optical unit includes a structure in which electrodes and a liquid crystal molecule layer are laminated alternately so that a refractive index distribution of the liquid crystal molecule layer is changed by applying a pre-defined voltage to the electrodes.

9. (Previously amended) The optical pickup apparatus of claim 8, wherein the objective lens unit is united with the spherical aberration correcting optical unit into one body that performs a tracking operation.

10. (Original) The optical pickup apparatus of claim 1, wherein the spherical aberration correcting optical unit corrects a spherical aberration caused in the objective lens unit due to a wavelength difference between the first wavelength $\lambda 1$ and the second wavelength $\lambda 2$.

11. (Previously amended) The optical pickup apparatus of claim 1, wherein the spherical aberration correcting optical unit corrects a spherical aberration caused by a variation of the first wavelength $\lambda 1$ when the first wavelength $\lambda 1$ varies in the range of ± 10 nm.

12. (Original) The optical pickup apparatus of claim 1, wherein a recording density of the first optical disk is larger than that of the second optical disk, the first optical disk includes a first protective layer on a first information recording surface thereof, and the spherical aberration correcting optical unit corrects a spherical aberration caused by a thickness error of the first protective layer.

13. (Currently amended) The optical pickup apparatus of claim 1, wherein:

a recording density of the first optical disk is larger than that of the second optical disk,

the first optical disk includes a multi-layer structure in which optically transparent layers and information recording surfaces are alternately laminated in this order from the light source side, and

the spherical aberration correcting optical unit corrects a spherical aberration which is caused when the objective lens unit makes a

focus jump from an i-th information recording surface to a j-th information recording surface,

where i is an ~~arbitral~~ arbitrary integer satisfying $1 \leq i \leq n$,

j is an ~~arbitral~~ arbitrary integer satisfying $1 \leq j \leq n$,

j is different from i, and

respective information recording surfaces in the multi-layer structure are arranged from a first information recording surface, to a second information recording surface, to an n-th information recording surface in this order from an information recording surface nearest to the light sources.

14. (Original) The optical pickup apparatus of claim 1, wherein a recording density of the first optical disk is larger than that of the second optical disk, the first optical disk includes a first protective layer with a thickness of t1 on a first information recording surface, the second optical disk includes a second protective layer with a thickness of t2 (t1<t2) on a second information recording surface, the spherical aberration correcting optical unit corrects a spherical aberration caused by a thickness difference between a thickness of the first layer and that of the second layer.

15. (Previously amended) The optical pickup apparatus of claim 1, wherein the objective lens unit includes at least one plastic lens, the spherical aberration correcting optical unit corrects a refractive index variation resulting from an environmental temperature variation in the plastic lens included in the objective lens unit and/or a spherical aberration resulting from a refractive index distribution caused by a temperature distribution in the plastic lens.

16. (Currently Amended) The optical pickup apparatus of claim 1, wherein:

a recording density of the first optical disk is larger than that of the second optical disk,

the first optical disk includes a first protective layer on a first information recording surface thereof,

a first magnification and a second magnification are different from each other, and where

the first magnification is a magnification of the objective lens unit when information recording and/or reproducing is conducted on the first optical disk, and

the second magnification is a magnification of the objective lens unit when information recording and/or reproducing is conducted on the second optical disk, and

the spherical aberration correcting optical unit changes an objective point position of the objective lens unit corresponding to a difference of the first magnification and the second magnification.

17. (Cancelled)

18. (Cancelled)

19. (Original) The optical pickup apparatus of claim 1, wherein the optical pickup apparatus includes a coupling lens for converting divergence angles of the first light flux emitted by the first light source and the second light flux emitted by the second light source and introducing the light fluxes into the objective lens unit, and the coupling lens includes the chromatic aberration correcting optical element.

20. (Currently amended) The optical pickup apparatus of claim 19, wherein the coupling lens comprises at least one [[of a]] plastic lens or a diffractive surface of the chromatic aberration correcting optical element, and the coupling lens functions to suppress a divergence angle variation in response to a temperature variation, or a converging angle variation in response to a temperature variation, for the first light flux emitted from the coupling lens.

21. (Currently amended) The optical pickup apparatus of claim 20, wherein:

a recording density of the first optical disk is larger than that of the second optical disk,

the coupling lens is a ~~one-group~~ plastic lens, and

the optical pickup apparatus satisfies the following formula:

$$\{NA1 \cdot (1\text{-}m1)\}^4 \cdot (f1^2/f_C) \cdot \mid c1+(c2\text{-}c1) \cdot P_D/P_C \mid <0.13 \cdot \lambda 1$$

where NA1 is a numerical aperture of the objective lens unit at the time of information recording and/or representing on the first optical disk, m1 is a magnification of the objective lens unit at the time of information recording and/or representing on the first optical disk, f1 (mm) is a focal length of the objective lens unit for the first wavelength $\lambda 1$ at the time of information recording and/or representing on the first optical disk, $\lambda 1$ (mm) is the first wavelength, f_C is a focal length of the coupling lens for the first wavelength $\lambda 1$, n is a refractive index of the coupling lens for the first wavelength $\lambda 1$, α is a linear expansion coefficient of the coupling lens, P_D (mm^{-1}) is a paraxial power of the diffractive surface for the first wavelength $\lambda 1$, P_C (mm^{-1}) is a paraxial power of the coupling lens for the first wavelength $\lambda 1$, $dn/d\lambda$ is a change rate in a refractive index resulting from a temperature variation in the

coupling lens, $d\lambda/dt$ is a wavelength change rate resulting from the temperature variation, and c1 and c2 are defined by the following formulas:

$$c1 = 1 / (n-1) \cdot dn/dt + 1 / (n-1) \cdot dn/d\lambda \cdot d\lambda/dt - \alpha$$

$$c2 = 1 / \lambda 1 \cdot d\lambda/dt - 2\alpha$$

and ~~when~~ where an added optical path length caused by the diffractive structure is defined by an optical path difference function represented by the formula:

$$P_D = -2 \cdot n1 \cdot B_2 \cdot (\lambda 1 / \lambda B)$$

and n1 is a diffraction order of a diffracted ray with a largest diffraction efficiency among diffracted rays caused when the first light flux enters into the diffractive structure, and P_D is defined by an added optical path length quantity caused by the following formula:

$$\phi = n \times (\lambda / \lambda B) \times \sum_{j=0} B_{2j} h^{2j}$$

where h (mm) is a height in a perpendicular direction to the optical path, $B2_j$ is an optical path difference function coefficient, n is a diffraction order of a diffracted ray with a largest diffraction efficiency among diffracted rays of an incident light flux, λ (nm) is a wavelength of an incident light flux to the diffractive structure and λB (nm) is a construction wavelength, or a blazed wavelength, of the diffractive structure.

22. (Original) The optical pickup apparatus of claim 21 which satisfies the following formula:

$$| c1 + (c2 - c1) \cdot P_D / P_C | / f_C < 0.08 \cdot \lambda 1 \text{ (mm)}$$

23. (Previously presented) The optical pickup apparatus of claim 1, wherein the chromatic aberration correcting optical element comprises at least one optical surface with negative paraxial power and is an one-group optical element which conducts the first light flux almost parallel to the optical axis and emits an almost parallel light flux.

24. (Previously presented) The optical pickup apparatus of claim 1, wherein the objective lens unit comprises at least two kinds of objective lenses:

a first objective lens for recording and/or reproducing information on a first optical disk with a first pre-defined recording density; and

a second objective lens for recording and/or reproducing information on a second optical disk with a second pre-defined recording density,

wherein the pickup apparatus further comprises a switching mechanism for selectively switching the first and second objective lenses.

25. (Previously presented) The optical pickup apparatus of claim 1, wherein the recording density of the first optical disk is larger than that of the second optical disk, and wherein a numerical aperture of the objective lens unit, when information recording and/or reproducing is conducted on the first optical disk, is 0.8 or more.

26. (Currently amended) The optical pickup apparatus of claim 1, wherein the recording density of the first optical disk is larger than that of the second optical disk, a first protective layer has a thickness in the range of 0.07 mm - 0.13 mm on the first information surface on the first optical disk, the second protective layer has a thickness in the range of 0.55 mm - 0.65 mm on the second information surface of the second optical disk, and the optical pickup apparatus conducts recording and/or reproducing of information on the first optical disk and the second optical disk by converging the first light flux on each of the information recording surfaces of the first optical disk and the second optical disk.

27. (Cancelled)

28. (Currently amended) An optical information recording and reproducing apparatus which comprises the optical pickup apparatus of claim 1 and is adapted to conduct at least one of recording information on the first to third ~~and second~~ optical disks and reproducing information recorded on the first to third ~~and second~~ optical disks.

29. (Withdrawn-Currently Amended) An expander lens for an optical pickup apparatus, the optical pickup apparatus comprising:

a first light source for emitting a first light flux with a first wavelength λ1 of 450 nm or less;

a second light source for emitting a second light flux with a second wavelength λ2 which is 1.3 times longer than the wavelength of the first wavelength λ1; and

an objective lens unit to converge the first light flux emitted by the first light source onto a first information recording surface of a first optical disk and to converge the second light flux emitted by the second

light source onto a second information recording surface of a second optical disk with a different recording density from that of the first optical disk,

wherein the expander lens is arranged between both of the first light source and the second light source and the objective lens unit and in a common optical path of the first light flux and the second light flux, and the [[the]] expander lens includes a positive lens group and a negative lens group;

the expander lens comprises a chromatic aberration correcting optical element which includes a diffractive surface on at least one ~~of~~ optical surface of the chromatic aberration correcting optical element such that a diffractive structure is constructed by a plurality of ring-shaped zones separated by fine steps and is formed on the diffractive surface;

the expander lens is designed so that a diffraction order n2 of a diffracted ray having a largest diffraction efficiency among diffracted rays when the second light flux enters into the diffractive structure, is a lower order than a diffraction order n1 for a diffracted ray having a largest diffraction efficiency among diffracted light rays when the first light flux enters into the diffractive structure; and

the expander lens changes a slope angle of a marginal ray in an incident light flux to the objective lens unit by variably adjusting an interval between at least one lens group of the lens group comprising a spherical aberration correcting optical unit and the objective lens unit.

30. (Previously presented) The expander lens of claim 29, wherein the second wavelength $\lambda 2$ is in the range of 600 nm - 700 nm and a combination of the diffraction order n1 and n2 is one of the following:

(n1, n2) = (2, 1), (3, 2), (4, 2), (5, 3), (6, 4), (7, 4), (8, 5), (10, 6).

31. (Withdrawn-Currently Amended) The expander lens of claim 30, wherein a refractive index of a lens constructing the chromatic aberration correcting optical element, and including the diffractive surface for the first wavelength λ1, is in the range of 1.5 - 1.6, the Abbe number for the d line of ~~(wavelength~~ 587.6 nm[[)]] is in the range of 50 - 60 and the depth (d0) of a step which is along an optical axis and closest to the optical axis satisfies one of the following:

(1) 1.2 μm < d0 < 1.7 μm

(2) 1.9 μm < d0 < 2.6 μm

(3) 2.6 μm < d0 < 3.2 μm

(4) 3.3 μm < d0 < 4.2 μm

(5) 4.4 μm < d0 < 5.0 μm

(6) 4.7 μm < d0 < 5.7 μm

(7) 5.6 μm < d0 < 6.5 μm

(8) 6.9 μm < d0 < 8.1 μm.

32. (Previously presented) The expander lens of claim 29, wherein the optical pickup apparatus further comprises a third light source for emitting a third wavelength λ3 which is different from the first and second wavelengths,

the objective lens unit converges a third light flux emitted from the third light source onto a third information recording surface of a third optical disk, the third optical disc having a different recording density from that of the first and the second optical disk,

the chromatic aberration correcting optical unit is arranged in a common optical path of the first to third light fluxes, the second wavelength

$\lambda 2$ is in the range of 600 nm - 700 nm, the third wavelength $\lambda 3$ is in the range of 730 nm - 830 nm, and the chromatic aberration correcting optical unit satisfies one of the following combinations:

$$(n1, n2, n3) = (2, 1, 1), (4, 2, 2), (6, 4, 3), (8, 5, 4), (10, 6, 5)$$

where n1, n2 and n3 are diffraction orders of diffracted rays with largest diffraction efficiencies in diffracted rays when the first, second and third light fluxes enter into the chromatic aberration correcting optical element, respectively.

33. (Withdrawn-Currently amended) The expander lens of claim 32, wherein a refractive index for the first wavelength $\lambda 1$ of a lens constructing the chromatic aberration correcting optical element and including the diffractive surface is in the range of 1.5 - 1.6, the Abbe number for the d line of ~~(wavelength~~ 587.6 nm[[)]] is in the range of 50 - 60 and the depth (d0) of a step which is along an optical axis and closest to the optical axis satisfies one of the following:

(9) $1.2\ \mu m < d0 < 1.7\ \mu m$

(10) $2.6\ \mu m < d0 < 3.2\ \mu m$

(11) $4.4\ \mu m < d0 < 5.0\ \mu m$

(12) $5.6\ \mu m < d0 < 6.5\ \mu m$

(13) $6.9\ \mu m < d0 < 8.1\ \mu m$.

34. (Currently amended) A coupling lens for an optical pickup apparatus comprising

a first light source for emitting a first light flux with a first wavelength $\lambda 1$ of 450 nm or less;

a second light source for emitting a second light flux with a second wavelength $\lambda 2$ which is in the range of 600 nm-700 nm ~~1.3 times longer than the wavelength of the first wavelength λ1~~;

a third light source for emitting a third wavelength λ3 which is in the range of 730 nm-830 nm;

an objective lens unit to converge the first light flux emitted by the first light source onto a first information recording surface of a first optical disk, ~~and~~ to converge the second light flux emitted by the second light source onto a second information recording surface of a second optical disk, and to converge the third light flux emitted by the third light source onto a third information recording surface of a third optical disk,

wherein ~~where in~~ the second optical disk has a different recording density from that of the first optical disk,

wherein the third optical disk has a different recording density from those of the first and the second optical disks,

wherein the coupling lens is arranged between all ~~both~~ of the first light source, [[and]] the second light source, the third light source, and the objective lens unit, and

wherein the coupling lens is in a common optical path of the first to third light fluxes ~~flux and the second light flux~~,

the coupling lens comprises a chromatic aberration correcting optical element which includes a diffractive surface on at least one optical surface of the chromatic aberration correcting optical element such that a diffractive structure which is constructed by a plurality of ring-shaped zones separated by fine steps is formed on the diffractive surface;

the coupling lens is designed so that a diffraction order n2 for a diffracted ray having a largest diffraction efficiency among diffracted rays when the second light flux enters into the diffractive structure is a lower order than a diffraction order n1 for a diffracted ray having a

largest diffraction efficiency among diffracted light rays when the first light flux enters into the diffractive structure; [[and]]

the coupling lens comprises a plurality of lens groups, and changes a slope angle of a marginal ray in an incident light flux to the objective lens unit by variably adjusting an interval between at least one lens group of the coupling lens ~~the lens group comprising the spherical aberration correcting optical unit~~ and the objective lens unit; and

the coupling lens satisfies one of the following combinations:

(n1, n2, n3) = (2, 1, 1), (4, 2, 2), (6, 4, 3), (8, 5, 4), (10, 6, 5)

where n1, n2 and n3 are diffraction orders of diffracted rays, wherein the diffracted rays have their largest diffraction efficiencies when the first, second, and third light fluxes enter into the chromatic aberration correcting optical element, respectively.

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Currently amended) The coupling lens of claim 37, wherein a refractive index for the first wavelength $\lambda 1$ of a lens constructing the chromatic aberration correcting optical element and including the diffractive surface is in the range of 1.5-1.6, the Abbe number for the d line of ~~(wavelength~~ 587.6 nm[[)]] is in the range of 50-60 and the depth (d0) of a step which is along an optical axis and closest to the optical axis satisfies one of the following:

(9) $1.2\ \mu m < d0 < 1.7\ \mu m$

(10) $2.6\ \mu m < d0 < 3.2\ \mu m$

(11) $4.4\ \mu m < d0 < 5.0\ \mu m$

(12) $5.6\ \mu m < d0 < 6.5\ \mu m$

(13) $6.9\ \mu m < d0 < 8.1\ \mu m$.

39. (Currently amended) The coupling lens of claim 38, wherein the coupling lens comprises at least one [[of a]] plastic lens or a diffractive surface of the chromatic aberration correcting optical element, and the coupling lens has a function for suppressing a divergence angle variation in response to a temperature variation, or a converging angle variation in response to a temperature variation, for the first light flux emitted from the coupling lens.

40. (Currently amended) The coupling lens of claim 39 which ~~is one group coupling lens and~~ satisfies the following formula:

$$\{NA1 \cdot (1-m1)\}^4 \cdot (f1^2 / f_C) \cdot |\, c1 + (c2 - c1) \cdot P_D / P_C \,| < 0.13 \cdot \lambda 1$$

where NA1 is a numerical aperture of the objective lens unit at the time of information recording and/or representing on the first optical disk, m1 is a magnification of the objective lens unit at the time of information recording and/or representing on the first optical disk, f1 (mm) is a focal length of the objective lens unit for the first wavelength λ1 at the time of information recording and/or representing on the first optical disk, the first λ1 (mm) is the first wavelength, f_C is a focal length for λ1 of the coupling lens, n is a refractive index for the first wavelength λ1 of the coupling lens, α is a linear expansion coefficient of the coupling lens, P_D (mm^{-1}) is a paraxial power of the diffractive surface for the first wavelength λ1, P_C (mm^{-1}) is a paraxial power of the coupling lens for the first λ1, dn/dλ is a change rate in a refractive index resulting from a

temperature variation in the coupling lens, $d\lambda/dt$ is a wavelength change rate resulting from the temperature variation, and c1, c2 and P_D are defined by the following formulas:

$$c1 = 1 / (n-1) \cdot dn/dt + 1 / (n-1) \cdot dn/d\lambda \cdot d\lambda/dt - \alpha$$

$$c2 = 1 / \lambda 1 \cdot d\lambda/dt - 2\alpha$$

$$P_D = -2 \cdot n1 \cdot B_2 \cdot (\lambda 1 / \lambda B)$$

where n1 is a diffraction order of a diffracted ray with a largest diffraction efficiency among diffracted rays when the first light flux enters into the diffractive structure, wherein P_D is defined by an added optical path length quantity caused by the diffractive structure which is represented by an optical path difference function satisfying the following formula:

$$\phi = n \times (\lambda / \lambda B) \times \sum_{j=0} B_{2j} h^{2j}$$

where h (mm) is a height in a perpendicular direction to the optical path, $B2_j$ is an optical path difference function coefficient, n is a diffraction order of a diffracted ray with a largest diffraction efficiency among diffracted rays of an incident light flux, λ (nm) is a wavelength of an incident light flux to the diffractive structure and λB (nm) is a construction wavelength, or a blazed wavelength, of the diffractive structure.

41. (Currently amended) The optical pickup apparatus of claim 40 which satisfies the following formula:

$$| c1 + (c2 - c1) \cdot P_D / P_C | / f_C < 0.08 \cdot \lambda 1 \text{ (mm)}.$$

42. (Previously presented) A chromatic aberration correcting optical element for an optical pickup apparatus comprising

a first light source for emitting a first light flux with a first wavelength λ1 of 450 nm or less;

a second light source for emitting a second light flux with a second wavelength λ2 which is 1.3 times longer than the wavelength of the first wavelength λ1;

an objective lens unit to converge the first light flux emitted by the first light source onto a first information recording surface of a first optical disk and to converge the second light flux emitted by the second light source onto a second information recording surface of a second optical disk, the second optical disk having a different recording density from that of the first optical disk,

wherein the chromatic aberration correcting optical element is arranged between both of the first light source and the second light source and is in a common optical path of the first light flux and the second light flux,

the chromatic aberration correcting optical element comprises:

at least one negative paraxial optical surface that conducts the first light flux almost parallel to the optical axis and emits an almost parallel light flux; and

a chromatic aberration correcting optical element which includes a diffractive surface on at least one optical surface of the chromatic aberration correcting optical element such that a diffractive structure which is constructed by a plurality of ring-shaped zones separated by fine steps is formed on the diffractive surface; and

wherein the chromatic aberration correcting optical element is designed so that a diffraction order n2 for a diffracted ray having a largest diffraction efficiency among diffracted rays when the second light

flux enters into the diffractive structure, is a lower order than a diffraction order n1 for a diffracted ray having a largest diffraction efficiency among diffracted light rays when the first light flux enters into the diffractive structure.

43. (Previously presented) The chromatic aberration correcting optical element of claim 42, wherein the diffractive structure is formed on a macroscopically flat optical surface and the opposite side of the optical surface has a negative paraxial power that does not have the diffractive structure thereon.

44. (Previously presented) The chromatic aberration correcting optical element of claim 42, wherein the second wavelength $\lambda 2$ is in the range of 600 nm - 700 nm and a combination of the diffraction order n1 and n2 is one of the following:

(n1, n2) = (2, 1), (3, 2), (4, 2), (5, 3), (6, 4), (7, 4), (8, 5), (10, 6).

45. (Withdrawn-Currently amended) The chromatic aberration correcting optical element of claim 44, wherein a refractive index of a lens constructing the chromatic aberration correcting optical element and including the diffractive surface for the first wavelength $\lambda 1$ is in the range of 1.5 - 1.6, the Abbe number for the d line of ~~(wavelength~~ 587.6 nm[[)]] is in the range of 50 - 60 and the depth (d0) of a step which is along an optical axis and closest to the optical axis satisfies one of the following:

(1) $1.2\ \mu m < d0 < 1.7\ \mu m$

(2) $1.9\ \mu m < d0 < 2.6\ \mu m$

(3) $2.6\ \mu m < d0 < 3.2\ \mu m$

(4) $3.3\ \mu m < d0 < 4.2\ \mu m$

(5) $4.4\ \mu m < d0 < 5.0\ \mu m$

(6) $4.7\ \mu m < d0 < 5.7\ \mu m$

(7) $5.6\ \mu m < d0 < 6.5\ \mu m$

(8) $6.9\ \mu m < d0 < 8.1\ \mu m$.

46. (Previously presented) The chromatic aberration correcting optical element of claim 42, wherein the optical pickup apparatus further comprises a third light source for emitting a third wavelength λ3 which is different from the first and second wavelengths,

the objective lens unit converges a third light flux emitted from the third light source onto a third information recording surface of a third optical disk, the third optical disk having a different recording density from that of the first and the second optical disks,

the chromatic aberration correcting optical unit is arranged in a common optical path of the first to third light fluxes, the second wavelength λ2 is in the range of 600 nm - 700 nm, the third wavelength λ3 is in the range of 730 nm - 830 nm, and the chromatic aberration correcting optical unit satisfies one of the following combinations:

$$(n1, n2, n3) = (2, 1, 1), (4, 2, 2), (6, 4, 3), (8, 5, 4), (10, 6, 5)$$

where n1, n2 and n3 are diffraction orders of diffracted rays having the largest diffraction efficiencies in diffracted rays when the first, second and third light fluxes enter into the chromatic aberration correcting optical element, respectively.

47. (Withdrawn-Currently amended) The chromatic aberration correcting optical element of claim 46, wherein a refractive index of a lens constructing the chromatic aberration correcting optical element and including the diffractive surface for the first wavelength $\lambda 1$ is in the range of 1.5 - 1.6, the Abbe number for the d line of ~~(wavelength~~ 587.6 nm[[)]] is in the range of 50 - 60 and the depth (d0) of a step which is along an optical axis and closest to the optical axis satisfies one of the following:

(9) $1.2\ \mu m < d0 < 1.7\ \mu m$

(10) $2.6\ \mu m < d0 < 3.2\ \mu m$

(11) $4.4\ \mu m < d0 < 5.0\ \mu m$

(12) $5.6\ \mu m < d0 < 6.5\ \mu m$

(13) $6.9\ \mu m < d0 < 8.1\ \mu m$.